CHAPTER SIX
CUMULATIVE IMPACTS

This chapter of the EIS addresses the cumulative effects of past, present, and reasonably foreseeable future actions in combination with the alternatives. The basis for this analysis is the recognition that while the impacts of many actions may be individually small, the cumulative effects of past, present, and reasonably foreseeable actions on populations or resources can be considerable.

Taking into account the impacts of other past, present, or reasonably foreseeable future actions, the proposed alternatives assessed in this EIS would not create any additional significant overall cumulative impacts on the human or natural environment. The known adverse impacts associated with such other actions were incorporated into the evaluation of the No Action and the Build Alternatives, as described in **Chapter 5, Environmental Consequences**.

6.1 INTRODUCTION

The Council on Environmental Quality's (CEQ) regulations for implementing NEPA defines cumulative effects as:

> the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions (40 CFR §1508.7).

NEPA requires that cumulative effects be evaluated along with the direct and indirect effects of the actions. As with direct and indirect project-related effects discussed in **Chapter 5, Environmental Consequences**, the No Action Alternative (Alternative A) serves as the reference point against which to evaluate cumulative effects.

When considering the significance of the cumulative effects, the same thresholds of significance used in identifying significant project-related effects are used. The thresholds of significance are defined in FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures*, and 5050.4A, *Airport Environmental Handbook*. It can be difficult to determine levels beyond which cumulative effects significantly degrade a resource. Local, state and federal standards for some resources will still apply, and other goals or objectives from land use management plans and other guiding programs may also serve as thresholds. Where numerical thresholds are not available or cannot be determined, impacts are typically quantified in relative terms of magnitude.

6.2 PROJECTS CONSIDERED IN CUMULATIVE EFFECTS

As defined by CEQ guidance,[1] the consideration of cumulative effects must consider the past, present, and reasonably foreseeable projects. Such projects include actions undertaken at the Airport by the City of Chicago or other parties (such as FAA or CTA), as well as notable actions that affect the airport area, including development undertaken in the Airport environs. This section identifies those past, present, and reasonably foreseeable future projects. **Table 6-7** lists the past, present, and reasonably foreseeable projects (not including the proposed development; projects proposed to address the needs are identified in **Chapter 2, Purpose and Need**).

6.2.1 Past Projects

CEQ guidance states:

> The availability of data often determines how far back past effects are examined. Although certain types of data ... may be available for extensive periods in the past..., other data … may be available only for much shorter periods. Because the data describing past conditions are usually scarce, the analysis of past effects is often qualitative.

Since the time the commercial Airport was built in the 1950s, facilities have been expanded and improved as activity levels have increased. In 1984, the FAA issued a Record of Decision (ROD) approving an Environmental Impact Statement[2] for development at the Airport. FAA issued a FONSI/ROD[3] for the World Gateway Program (WGP – reflecting additional terminal development at O'Hare) in June 2002 based on an Environmental Assessment (EA). These NEPA documents considered existing impacts (as of 1982 or 2000) and impacts of the projects and their alternatives in future timeframes. The earliest basis of data concerning environmental effects from activity at O'Hare is available in the 1984 EIS. These conditions are depicted in the No Action Alternative, as well as the Build Alternatives, evaluated in this EIS. Therefore, for purposes of this cumulative effects analysis, past conditions were incorporated from that 1984 EIS, and thus reflect conditions during the last three decades, unless noted otherwise.

A number of national level initiatives have occurred in the last three decades that have affected the impacts that airports, such as O'Hare, exert on the local environs. These actions include:

- International Civil Aviation Organization (ICAO) adoption of noise source emissions standards, followed by adoption of these standards by the FAA (FAR Part 36 and Part 91) that have resulted in the phase-out of the noisiest aircraft. By 1985, all Stage 1 air carrier aircraft were phased out of operations, and by 2000 all Stage 2 aircraft weight greater than 75,000 lbs were phased out of operation. As a result, significant reductions in the single event noise levels emitted by aircraft have occurred.
- Pursuant to the Clean Air Act (CAA), the Chicago area has been designated as a non-attainment area for ozone. The Chicago area in particular has been required to

[1] Considering Cumulative Effects Under the National Environmental Policy Act, Council on Environmental Quality, January 1997.
[2] Final Environmental Impact Statement, Chicago O'Hare International Airport, Chicago, Illinois, FAA, May 1984.
[3] Finding of No Significant Impact (FONSI) Record of Decision (ROD) for World Gateway Program and Other Capital Improvement Projects at Chicago O'Hare International Airport, Chicago, Illinois, June 2002.

develop air emission budgets, and thereafter implement air emission controls in response to the State Implementation Plan (SIP). Due to air quality conditions across the country, emissions standards were instituted for surface vehicles, resulting in substantial reductions in automobile emissions. EPA is now requiring reduction in emissions from trucks and other on-road and off-road vehicles.

- ICAO has also adopted aircraft engine emission standards that have been followed by USEPA adoption of these standards (40 CFR Part 87). For the last three decades, these standards have been modified, such that current EPA/ICAO standards require newly manufactured aircraft engines to meet emission controls for engine smoke, prohibit fuel venting, and establish standards for unburned hydrocarbons, carbon monoxide, and nitrogen oxides.

Since the early 1980s, a number of projects, as listed in **Table 6-7**, have been completed at O'Hare. In addition to past improvements at the Airport, improvements and development have occurred in the surrounding area. In examining past projects from a regional perspective, consideration was given to development occurring in the same timeframe as was considered for airport development, thus the last 20 years. This review has focused on changes that have occurred based on the land use study area, as reflected in **Exhibit 4.2.1,** in **Chapter 4, Affected Environment, Section 4.2, Existing Land Use and Land Use Planning**. During this timeframe, development or improvements in the airport environs have included:

- General infill development in residential areas resulting in a population growth in the O'Hare communities of about 8.5 percent,[4] as shown in **Table 6-1**. Although most of the municipalities surrounding the Airport are largely populated with residential and commercial development, some municipalities have grown in the last 20 years.
- Development and expansion of the Donald E. Stephens Convention Center, development and expansion of hotels, development of the Allstate Arena northwest of O'Hare, all in Rosemont.
- Other community projects include: general infrastructure renewal and replacement.

In general, the environs around O'Hare have experienced infill development pressures, but have not experienced significant redevelopment.

[4] This percentage does not include Chicago, as it has experienced a population decline since 1980, and as it is so much larger than the other municipalities, it would skew the results.

TABLE 6-1
POPULATION CHANGES IN AIRPORT VICINITY

Geographic Area	1980	1990	2000	% Change 1980-2000	Forecast 2030	% Change 2000-2030
Municipality						
Addison	29,759	32,058	35,914	20.6%	38,561	7.4%
Arlington Heights	66,116	75,460	76,031	15.0%	82,441	8.4%
Bensenville	16,124	17,767	20,703	28.4%	19,048	-8.0%
Chicago	3,005,072	2,783,726	2,896,016	-3.6%	3,260,897	12.6%
Des Plaines	53,568	53,223	58,720	9.6%	60,343	2.8%
Elk Grove Village	28,907	33,429	34,727	20.1%	36,948	643%
Elmhurst	44,276	42,029	42,762	-3.4%	43,075	0.7%
Franklin Park	17,507	18,485	19,434	11.0%	19,113	-1.7%
Harwood Heights	8,228	7,680	8,297	0.8%	8,088	-2.5%
Itasca	7,129	6,947	8,302	16.5%	10,706	29.0%
Mount Prospect	52,634	53,170	56,265	6.9%	58,049	3.2%
Norridge	16,483	14,459	14,582	-11.5%	14,384	-1.4%
Northlake	12,166	12,505	11,878	-2.4%	10,951	-7.8%
Park Ridge	38,704	36,175	37,775	-2.4%	36,620	-3.1%
Rolling Meadows	20,167	22,591	24,604	22.0%	26,351	7.1%
Rosemont	4,137	3,995	4,224	2.1%	4,055	-4.0%
Schiller Park	11,458	11,189	11,850	3.4%	11,579	-2.3%
Wood Dale	11,251	12,425	13,535	20.3%	13,869	2.5%
Municipality Total	**3,443,686**	**3,237,313**	**3,375,619**	**-2.0%**	**3,755,078**	**11.2%**
Municipality Total Without Chicago	**438,614**	**453,587**	**479,603**	**8.50%**	**494,181**	**2.90%**
County						
Cook County	5,253,655	5,105,067	5,376,741	2.3%	5,938,248	10.4%
DuPage County	658,835	781,666	904,161	37.2%	1,002,325	10.9%
Kane	278,405	317,471	404,119	45.1%	692,346	71.3%
Lake	440,372	516,418	644,356	46.3%	844,315	31.0%
McHenry	147,897	183,241	260,077	75.9%	449,823	73.0%
Will	324,460	357,313	502,266	54.8%	1,107,778	120.6%
County Total	**7,103,624**	**7,261,176**	**8,091,720**	**13.9%**	**10,034,835**	**24.0%**

Source: U.S. Census Bureau and Northeastern Illinois Planning Commission (NIPC)

6.2.2 Current/Present Projects

When considering current projects, clarification is needed as to the timeframe associated with "current". For purposes of this cumulative effects analysis, current refers to projects that would be under construction during years 2004 through 2007, which have already received environmental approval and/or are in the design phase. These are projects that would occur independent of the Build Alternatives.

In the context of the cumulative effects analysis, current projects would include:

- **Chicago Terminal Airspace Project (CTAP)**: The CTAP is an airspace and high altitude route reconfiguration designed to make more efficient use of the terminal

airspace. This project was designed to reduce the overall en route time for aircraft using O'Hare and Midway. The proposed changes would primarily take place 40 to 60 miles from O'Hare at high altitudes;

- Continuation of the **National Airspace Redesign (NAR):** As discussed in **Chapter 1, Introduction and Background,** through **Chapter 3**, **Alternatives**, the FAA has undertaken a national initiative to improve the efficiency of the national airspace system. This program is expected to continue implementation of various elements that will reduce congestion and delays.
- **CAT II/III on Runways 27L and 27R**: In 2004, the FAA completed an Environmental Assessment for the upgrade to the ILS for Runways 27L and 27R at O'Hare. This project will reduce overall aircraft delay and the number of flight cancellations during poor weather conditions by enabling these runways to be used during Cat II and Cat III conditions. The FAA issued a FONSI/ROD for this project in 2004.[5]
- **Midway Terminal Development Program (TDP)**: The Midway TDP has significantly upgraded the terminal and passenger processing facilities at Midway Airport. A new two-level terminal facility on the east side of Cicero Avenue was completed with a two-level concourse and gate facility connected to the terminal by a pedestrian bridge that crosses Cicero Avenue. The project and its components were initiated in 2001 and completed in 2004.
- **United Airlines Headquarters and Associated Development:** The City has agreed to lease land to United Airlines to allow development of a headquarters campus. The United Airlines Headquarters Campus may be built on the former Military Site on the northeast quadrant of the Airport by 2007.
- Ongoing **Security Improvements** in response to Transportation Security Administration requirements.
- Ongoing **Airport Capital Improvement Projects**: These types of projects are generally infrastructure maintenance and rehabilitation, and include projects such as drainage improvements, fuel system improvements, safety and security enhancements, and various terminal and H&R system improvements.
- **Access/Roadway Improvements** in the O'Hare Vicinity. Such improvements include:
  - *Widening Mannheim Road* to 3 lanes in each direction between Higgins Road and Irving Park Road. This project is expected to be completed by the Illinois Department of Transportation (IDOT) by 2007.
  - The Village of Rosemont has proposed to develop a *tunnel under Mannheim Road* to serve traffic seeking to go from southbound Mannheim Road to eastbound Balmoral Avenue.
  - *Improvements to I-190*: IDOT, Chicago Department of Transportation (CDOT), and the City of Chicago are co-sponsoring a roadway project improvement for I-190, which

[5] Department of Transportation, Federal Aviation Administration Finding of No Significant Impact/Record of Decision, Chicago O'Hare International Airport, Chicago, Illinois, October 1, 2004.

is the primary access road to the Airport. This project would increase the efficiency of I-190 and reconfigure four interchanges between I-90 and the entrance to the Airport.

- **Continued residential infill** in O'Hare area communities: Cities in the project area that are continuing to increase the number of residential units include Franklin Park, Elk Grove Village, Elmhurst, and Rosemont. Increases in residential population has continued to result in additional service industry development. City street improvements are expected to continue to reduce local surface traffic congestion and traffic levels on area roadways due to population increases. In addition, the City of Des Plaines has a downtown redevelopment program underway that will have retail, office, and housing.

6.2.3 Reasonably Foreseeable Future Actions

An extensive number of future projects are expected during the next two decades at the Airport and in the surrounding airport environs. At O'Hare these would include the proposed O'Hare Modernization Plan or other alternative(s) as discussed in **Chapter 3, Alternatives**. In addition to future projects anticipated by the City or other agencies that would occur at the Airport, projects are expected by others in the area, such as IDOT and other local agencies such as the local cities (villages/cities of Bensenville, Des Plaines, Schiller Park, Rosemont, etc). These projects might include:

- **ICAO Chapter/Stage 4 Noise Levels**: In June 2001, based on recommendations made by the Committee on Aviation Environmental Protection (CAEP/5), ICAO adopted a new Stage 4 noise standard. Effective January 2006, newly certificated aircraft must meet more stringent noise reduction standards as will aircraft for which re-certification to Stage 4 is requested.
- **South Suburban Airport (SSA)**: The State of Illinois is proposing to build a new commercial service airport, known as the South Suburban Airport (SSA), near Peotone, Illinois. On July 12, 2002, the FAA issued a Record of Decision on the SSA Tier 1 EIS.[6] Site approval for the future option allowed for land acquisition by the State of Illinois prior to the site undergoing suburban development. At a later date, it will be determined how market demands would be met. On October 28, 2003, the FAA issued a Notice of Intent (NOI) to prepare a Tier 2 EIS for the first phase of construction and operation of Inaugural Airport Facilities.[7] The proposed Federal action under consideration in this Tier 2 EIS is approval of an ALP for development of an inaugural air carrier airport at the FAA approved site. It is the State of Illinois' intent that this airport serves the forecast needs of air carrier passengers, cargo, and general aviation within the south suburban area.

[6] Record of Decision for Tier 1: FAA Site Approval and Land Acquisition by the State of Illinois, Proposed South Suburban Airport, U.S. Department of Transportation, Federal Aviation Administration, July 12, 2002.

[7] Notice of Intent to Prepare a Tiered Environmental Impact Statement and Conduct Environmental Scoping for the Construction and Operation of Inaugural Airport Facilities by the State of Illinois for the South Suburban Airport, Federal Register, Volume 68, Number 208, October 28, 2003.

The State has proceeded to acquire property that would be contained in the inaugural site proposed to consist of approximately 4,200 acres, which would be consistent with a one-runway facility, as currently contemplated. The State has not commenced purchase of property outside of the footprint of the inaugural site, with the exception of hardship cases. The proposed full build site would consist of approximately 24,000 acres. Development of the full build site, when determined necessary and appropriate, would be subject to environmental reviews subsequent to the Tier 2 EIS.

- **Airport Improvements at Existing Airports:** The owners/operators of many of the airports in the area have approved or ongoing Master Plans that anticipate further improvements at the airports. See **Appendix A, Background,** for further detail on these airports. The following is a general description of these airports:
  - *Gary/Chicago International Airport:* The Master Plan for this airport, and the Final EIS, identify the following projects: 1) projects needed to correct the current runway safety area deficiencies for Runway 12/30; 2) extension of Runway 12/30 to 8,900 feet (an extension of 1,900 feet); 3) expansion of the existing passenger terminal; and 4) review of land acquisition needs for future airport development. A notice of availability of the Record of Decision (ROD) for proposed improvements at the Gary/Chicago International Airport was published on March 24, 2005.[8]
  - *Milwaukee General Mitchell Airport:* The Airport currently has five runways, including two sets of parallels and a passenger terminal facility with 42 gates. General Mitchell is currently in the process of completing an Airport Master Plan for the expansion of the airport. The Master Plan for this airport identifies the following projects: 1) Realignment and extension of Runway 7L/25R (completed in 1998); 2) Construction of a 1,000-foot extension to Runway 7R/25L; 3) Construction of a 2,850-foot extension to Runway 1R/19L (500 feet to the north and 2,350 feet to the south) and 4) Construction of a 7,000-foot new runway parallel to, and 3,540 feet south of, Runway 7R/25L; and 5) expansion of cargo, parking and terminal space.
  - *Chicago Midway International Airport*: It is anticipated that with the completion of the terminal development program at Midway Airport, that capital improvements would be undertaken in the future to address the evolution of activity at that Airport.
  - *Greater Rockford Airport*: Rockford currently has two intersecting runways, the longest of which is 10,000 feet with a Category III instrument landing system. Because of these capabilities, aircraft are sometimes diverted from O'Hare to Rockford during poor weather conditions. A future parallel air carrier runway is depicted on the Airport Layout Plan. FAA has supported the sponsor's requests for improvements at Rockford through the provision of airport development funds. For example, over the last 10 years, FAA has provided Federal funds in the amount of approximately $50 million to the Greater Rockford Airport. It is reasonable to

[8] The Notice of Availability for the Gary/Chicago International Airport Record of Decision, FAA, Federal Register, Volume 70, Number 56, March 24, 2005.

assume that if expanded air service were to be initiated at Rockford that additional airport improvements would be initiated.

- **Surface Access/Area Roadway Improvements**: Because of regional population growth and automobile/freight mobility congestion, numerous surface transportation improvements are identified. Included are:
  - *I-90 Interchange at Elmhurst Road***:** The Illinois State Toll Highway Authority (ISTHA) is planning to expand the I-90 Interchange at Elmhurst Road to add access to and from the west on I-90 to Elmhurst Road. The current I-90 interchange only has ramps to and from the east.
  - *New Tri-State (I-294) Tollway Interchange at Devon Avenue***:** ISTHA is planning a new partial interchange (southbound off-ramp) to Devon Avenue.
  - *Metra Commuter Stations***:** Metra has proposed to add commuter stations along the Wisconsin Central Railroad in Rosemont, Schiller Park, and Franklin Park, and the addition of up to two tracks at five locations along this line. The proposed stations and track additions are related to the overall corridor improvements, which are necessary due to the increasing congestion on the existing railway network.
  - *Rosemont Railroad Spur***:** The Village of Rosemont has developed a railroad spur concept for the construction of a system of railroad spurs to be used to off-load/load cargo. The spurs would be located to the east of Mannheim Road, between Balmoral and Lawrence Avenue.
  - *CATS 2030 Regional Transportation Improvement Plan (RTP)*: The 2030 RTP identifies emerging transportation challenges and their possible solutions and provides a guide for long-term transportation investment in the region. Among the projects noted are:
    - O'Hare Collector Distributor Road: consists of redesigning and reconfiguring access to I-190 and O'Hare Airport to improve mobility and reduce congestion and collisions. The project includes collector and distributor roads that would facilitate access to the airport. This project is estimated to be completed by 2012.
    - I-80/94 from I-294 to US 41: Additional capacity is proposed on I-80/94 from I-294 to US 41, plus a major new collector/ distributor system servicing the I-294/IL 394 interchange. This project will improve geometry and will substantially improve the operations and safety. The project is scheduled for completion by 2007.
    - I-355 Extension from I-55 to I-80: ISTHA is constructing a 12.5-mile extension of the North-South Tollway (I-355) from its current terminus at I-55 (southwest of O'Hare) southward to I-80 in New Lenox Township within Will County. Construction started on this project in late 2004 and is expected to be completed in 2007.
    - O'Hare and Midway Airport Express Rapid Transit: Currently, service is available along CTA's Blue Line and Orange Line, providing service between

O'Hare and Midway and Chicago's Central Business District (CBD). This project will connect Chicago's Central Area with both O'Hare and Midway Airports. The RTP expects that service will eventually include a new downtown terminal providing passengers with boarding passes and baggage check-in. New tracks would be constructed on the existing CTA Blue and Orange Line to allow the express trains to bypass local service, thereby reducing travel times.

- I-90 (Northwest Tollway) Improvements: Most of I-90 will require reconstruction in the coming decades. The RTP initial proposal includes an additional lane in each direction on the I-90 from I-294 to the Elgin toll plaza. A subsequent proposal involves the additional lanes from the Elgin toll plaza to Sandwald Road. The RTP notes "Additional attention should be paid to assure that the project takes into account a possible West O'Hare Bypass and western terminal for O'Hare."
- I-294/94 (Tri State Tollway) Improvements: The RTP initial proposal includes an additional lane in each direction on the Tri-State Tollway from US12/20 (95th Street) to I-394. Much of this Tollway will require restoration or reconstruction in the future, so reconstruction projects may provide opportunities to efficiently add capacity.
- Elgin-O'Hare Expressway: The Elgin-O'Hare Expressway has been planned to link Elgin and other western suburbs with O'Hare. The first part of the road was opened in the 1990's and carries high traffic volumes. In addition to extending the Elgin-O'Hare east and west, the RTP recommends adding lanes to the existing freeway. While not specifically noted in the RTP, this roadway has been envisioned to connect to the western side of O'Hare generally along the Thorndale/Elmhurst Road corridor.
- Elgin-O'Hare Expressway and West O'Hare Bypass: The initial proposal is to provide new multi-modal highway segments to complete west and east segments of the existing Elgin-O'Hare Expressway and provide new access to and provide a bypass west of O'Hare. On the eastern end of the existing Elgin-O'Hare facility, the RTP notes an expressway segment to complete the connection to O'Hare. The facility is also expected to provide a western access point to O'Hare's West Terminal, relieving congestion to the east of the Airport. The West O'Hare Bypass is proposed to provide a new connection between I-294 south of O'Hare and I-90 northwest of the Airport. The City of Chicago has preserved a corridor on Airport property for a portion of the proposed West Bypass.
- Suburban Transit Access Transit Route: The initial proposal of the Suburban Transit Access Route (STAR) Line is for new transit infrastructure between O'Hare Airport and Joliet. After an extensive analysis study by the RTA and the Northwest Municipal Conference, the O'Hare-to-Hoffman Estates portion of the STAR Line was endorsed by both organizations as the locally preferred alternative. The Northwest Municipal Conference also endorsed the Hoffman

Estates-to-Joliet portion of the STAR Line as the locally preferred alternative. This locally preferred alternative promotes commuter rail-style service using the Northwest Tollway (O'Hare-to-Hoffman Estates) and the Elgin Joliet & Eastern (EJ&E) freight rail line (Hoffman Estates-to-Joliet).

- Inner Circumferential Rail: The initial proposal is for a new commuter rail line along the Indiana Harbor Belt Railroad (IHB) in western Cook County between Midway and O'Hare Airports. The facility would provide suburb-to-suburb and north-south travel, plus connections to existing Metra lines between Midway and O'Hare.

- **Other Regional Development:** Commercial, industrial, and residential development is expected to continue throughout the region. This growth has been forecast by the Northeastern Illinois Planning Commission (NIPC) and Chicago Area Transportation Study (CATS), and is incorporated into regional traffic analyses. Development surrounding O'Hare is expected to include residential, commercial, retail, and industrial uses. It is anticipated that future land use immediately adjacent will resemble the existing zoning classifications as shown in **Exhibit 4.2-2,** in **Chapter 4, Affected Environment, Section 4.2, Existing Land Use and Land Use Planning**. Future development in the project area is expected primarily to involve infill of existing commercial and residential areas.

  As shown in **Table 6-1**, continued population growth is expected in most of the communities in the airport vicinity through 2030. On average, the population of these communities is expected to increase 2.9 percent[9] between 2000 and 2030. In general, the O'Hare area is a densely populated urban area. Based on the NIPC forecast, reductions in population intensity are expected in Bensenville, Franklin Park, Harwood Heights, Norridge, Northlake, Park Ridge, Rosemont, and Schiller Park. Many of these communities are older and as a result, generally have reached development saturation. Greater than average growth in the Airport area is expected primarily in communities northwest and west of the Airport (Addison, Arlington Heights, Elk Grove Village, Itasca, Rolling Meadows etc.).

  Additional population will result in the development of additional homes through infill development (subdivisions and subdivision of land parcels). The increase in population density is expected to also induce the development of additional service industry-related business (restaurants, grocery stores, gas stations, etc) to support this additional population, placing development pressures on undeveloped and natural resource areas (generating additional stormwater runoff, filling of wetlands, loss of wildlife habitat, etc). In addition, the additional population growth is expected to generate additional surface traffic levels which have been reflected in the background traffic forecasts used in this study as obtained from the Chicago Area Transportation Study (CATS).

[9] This percentage does not include Chicago, as it is so much larger than the other municipalities, it would skew the results.

6.3 CUMULATIVE EFFECTS ANALYSIS

The scope of projects for cumulative effects consideration can vary by resource, just as the geographic study areas for the different resources may vary, as discussed in **Chapter 4, Affected Environment**. In general, those projects on or within the immediate area of the Airport property are included because they are within the potential construction area of the Build Alternatives. Additional coverage outside of the immediate impact zone is dependent on the resource being considered, and is influenced by such factors as political and land use jurisdictions, any unique characteristics of the resource, importance of the resource in a local and regional setting, and the distance the impact within that resource can travel. **Table 6-8** at the end of this section identifies the past, present, proposed, and reasonably foreseeable future actions, and estimated cumulative effects for each of the resources. It is important to note that it is often difficult to estimate or predict the impact of future projects until the time that detailed plans are developed and any requisite environmental analysis conducted. Therefore, this analysis identifies impacts that are known at this time.

6.3.1 Noise

The consideration of cumulative effects of noise began with the consideration of the individual effects associated with aircraft noise, surface travel noise, and rail noise. The cumulative effects of all mobile noise sources are also discussed.

6.3.1.1 Aircraft Noise

Based on the 1984 Final EIS, O'Hare was shown to have a significant noise exposure impact on local communities (see **Table 6-2**). In 1982, 286,320 people in 94,720 housing units were affected by 65 DNL and greater sound levels.[10] In 1982, O'Hare accommodated 591,807 annual operations.[11] By 2002, annual activity had increased to 922,787[12], a 56 percent increase in aircraft operations over 1982 levels. Over that same period, the population exposed to significant aircraft noise exposure in 2002 declined significantly to approximately 22,000 people. This decrease in noise exposure was primarily due to the Federal actions that have been taken to reduce noise at the source (Stage 3 noise standards).

TABLE 6-2
SIGNIFICANT AIRCRAFT NOISE EXPOSURE (65 DNL & GREATER)

Impact	1982	2002 Baseline	Build Out + 5 No Action (Alternative A)	Build Out + 5 (Alternative C, D, or G)
Population	286,320	20,010	17,500	22,940 to 23,990
Housing	94,720	8,510	6,410	8,060 to 8,500

Note: Data is rounded to the nearest 10.
Source: TPC analysis, January 2005.

[10] Final Environmental Impact Statement, Chicago O'Hare International Airport, Chicago, Illinois, Volume Two of Two Appendices, Exhibit 16, page 22.
[11] 2003 Terminal Area Forecast, Federal Aviation Administration.
[12] FAA 2002 CY Air Traffic Activity Data System (ATADS).

By Build Out + 5, significant aircraft noise exposure is expected to further decrease to about 17,500 people and 6,410 homes in the No Action Alternative. This equates to an approximate 13 percent reduction in population and a 25 percent reduction in housing units over 2002 Baseline levels. When compared to 1982 levels, there is a reduction of approximately 93 percent in population and 91 percent reduction in housing units.

With improvements that would address the needs discussed in **Chapter 2**, **Purpose and Need**, noise impacts would increase over Alternative A (No Action Alternative) by 33 percent with Alternative C (8,504 housing units affected), 30 percent with Alternative D (8,354 housing units affected), and 26 percent with Alternative G (8,056 housing units affected). Project-related noise levels in the Build-Out +5 phase would be less than conditions in 1982, but slightly larger than conditions in 2002. Thus, from an aircraft noise exposure perspective, the cumulative effects of past, present, and reasonably foreseeable actions indicate a beneficial reduction in population and housing units affected by aircraft noise.

6.3.1.2 Surface Travel Noise

While auto specific noise regulations at the source do not exist, as surface-related travel has increased over the last three decades, surface vehicle noise levels have incrementally increased. It is not possible to quantify the amount of the sound level increases, as measurement data for those past years is not available. The proposed Build Alternatives are expected to result in additional surface traffic levels, when compared to the No Action Alternative (Alternative A). As a result, these improvements, in combination with other past, present, and reasonably foreseeable actions (predominantly regional population growth) are expected to result in additional surface travel, which in turn would result in increases in surface travel noise. Because such increases are not expected to be significant, the Build Alternatives are not likely to add any incremental surface travel noise. As the population of the region increases, and anticipated surface transportation projects are implemented, it is likely that additional surface travel-related noise impacts would increase. Moreover, as the Agency has stated elsewhere, until specific plans are completed for those projects, the potential environmental impacts attributable to such projects cannot be specified. Similarly, impacts from those projects cannot be quantified in any cumulative impact analysis. As the proposed airport development is not expected to result in any incremental impacts in surface travel-related noise levels, no cumulative effect, as a result of the Build Alternatives is anticipated.

6.3.1.3 Rail-Related Noise

Similar to highway travel noise, rail specific noise regulations at the source do not exist. Rail travel in the airport area has fluctuated but remained relatively constant in the last decade. As a result, rail noise has likely stayed rather constant. It was not possible to quantify the amount of the sound level changes over time, as quantitative data was not identified for past conditions. The proposed build alternatives would require relocation of a rail line and, as discussed in **Chapter 5, Environmental Consequences, Section 5.1.4.3, Railroad Noise and Vibration**, would increase noise to four residential units which were previously insulated by the City of Chicago for aircraft noise. Included in **Appendix F, Noise, Attachment F-4** are the projections of rail use anticipated to use the affected rail line for the Build Out + 5 for the No Action and

Build Alternatives. The Build Alternatives are not anticipated to generate additional rail use beyond the expected future use. Since these residences are insulated for aircraft noise, no rail noise impacts would be expected. As the proposed airport development is not expected to result in a significant rail noise, no significant cumulative rail-related noise effects are anticipated.

6.3.2 Compatible Land Use

Much of the past, present, and foreseeable future land use impacts from O'Hare have been, and continue to be, associated with aircraft noise exposure conflicts. In addition to the population and housing noise effects discussed in **Section 6.3.1**, **Noise,** consideration was also given to the effects of past, present, and foreseeable actions on other land uses. However, it is anticipated that the land use effects would directly parallel those effects discussed for noise. As noted earlier, aircraft noise exposure has decreased extensively between 1982 and 2002. While there would be a project-related increase in the Build Out + 5 phase, relative to past conditions, noise levels would continue to be less than conditions in 1982, but slightly larger than conditions in 2002.

It is anticipated that changes in land use will continue in the airport vicinity due to continued increases in population in the airport area and in the Chicagoland area. Much of the Airport environs are already surrounded by intensive transportation, residential, and commercial uses. Reductions in surface travel congestion in the area may have a beneficial effect, particularly west of the Airport, of increasing the value of property for commercial uses (such as hotel, restaurant, and office uses). However, land use effects are dependent on ultimate design, land use plans, and other considerations. Further reductions in non-compatible land uses are expected as a result of potential mitigation measures associated with the Build Alternatives that will be specified in the ROD.

As noted, the proposed build alternatives would require acquisition of residential and commercial property in the airport area. Potential projects such as the Elgin-O'Hare and the West O'Hare Bypass, if implemented, are also expected to require acquisition of area property (primarily industrial property). The RTP notes, that "there are existing residential communities adjacent to the corridor that should be considered in mitigating the impacts of the project." While acquisition and disruption is expected from such future projects, the specific quantity is not known until further planning and design is conducted by the sponsoring organizations. However, such impacts could be mitigated through compliance with the Uniform Act[13] concerning such relocations. Moreover, as the Agency has stated elsewhere, until specific plans are completed for those projects, the potential environmental impacts attributable to such projects cannot be specified. Similarly, impacts from those projects cannot be quantified in any cumulative impact analysis. For example, until specific plans are completed for regional development projects, the potential environmental impacts attributable to those projects are highly speculative and cannot be specified.

[13] Uniform Relocation Assistance and Real Property Acquisition Polices Act of 1970, as amended (42 U.S.C. 4601 et seq.).

6.3.3 Social and Secondary (Induced) Impacts

As stated in FAA Order 1050.1E:

> The principal social impacts to be considered are those associated with relocation or other community disruption, transportation, planned development, and employment… estimates of the numbers and characteristics of individuals and families to be displaced, the impact on the neighborhood and housing to which relocation is likely to take place, and an indication of the ability of that neighborhood to provide adequate relocation housing for the families to be displaced.

The primary past and present effect that O'Hare exerts on the local community is associated with additional surface traffic levels (as discussed later in **Section 6.3.4, Surface Transportation Impacts**) and community noise annoyances. The only property acquired by the City in the last three decades for O'Hare has been the military land on the northeast quadrant of the Airport (the military property was acquired through a land transfer of 36 acres). Therefore, O'Hare has generated little past disruption of established communities in the context of acquisition. As noted in **Section 5.4, Social Impacts**, the proposed airport development alternatives would require the acquisition and relocation of 6 housing units in the Northwest Acquisition area with Alternatives C, D, or G, and 533 (Alternative D or G) to 539 (Alternative C) housing units in the Southwest Acquisition area. These alternatives would also require acquisition and relocation of businesses: Alternatives C, D, and G would require 109 businesses in the Northwest Acquisition Area; Alternatives D or G would require acquisition of 164 businesses while Alternative C would require 197 businesses in the Southwest Acquisition area. In addition, Airport noise impacts have caused community disruption, as evidenced by aircraft noise complaints; however, as noted in the preceding section, past, present and foreseeable actions are expected to result in further noise impact reductions.

Beneficial social impacts have also occurred from actions at O'Hare, including reductions in passenger inconveniences, the creation of additional jobs and economic opportunities from construction activity as well as ongoing airport operational impacts. **Table 6-3** presents the annual economic contribution from aviation activity at O'Hare.

TABLE 6-3
ANNUAL ECONOMIC CONTRIBUTION FROM AVIATION ACTIVITY AT O'HARE

Economic Activity	1982	2002	Build Out + 5 No Action (Alternative A)	Build Out + 5 (Alternative C, D, or G)
Jobs Total	103,736	481,730	521,570	570,970
Jobs (direct at O'Hare)	22,675	NA	NA	NA
Total Impact	$5.5 billion	$47.8 billion	$68.6 billion	$74.5 billion

Note: NA= Not Available
Source: 1982: Environmental Impact Statement, FAA, May 1984, Volume Two of Two, Appendix A, Exhibit 20; 2002 and Build-Out +5: Table 1, Geographic Disaggregation of OMP and No-Project Alternative Regional Economic Impacts, HR&A [CCT], December 24, 2004.

In addition to acquisition-related effects, the Airport exerts a large socioeconomic effect. In 1982, O'Hare resulted in direct, indirect, and induced impacts on the local economy. About 103,736 people were employed due to the presence of aviation activity at O'Hare (22,675 jobs directly at O'Hare). Total impact was $5.5 billion to the regional economy in 1982 dollars. It has been expected that as aviation activity increases, the positive socioeconomic effects of the

airport would also increase. By 2002, 481,730 jobs were enabled by aviation activity at O'Hare. This represents an increase of 364 percent over 1982 levels while annual operations increased 27 percent. From 2002 to 2018, the regional economic contribution from aviation activity at O'Hare is expected to increase further to 521,570 jobs and $68.6 billion regardless of whether the Build Alternatives are undertaken at O'Hare, an increase of 8.3 percent and 43.5 percent, respectively, over 2002 levels. The Build Alternatives would generate 49,400 additional jobs and $5.9 billion to the regional economy.

Build Alternatives at O'Hare, coupled with past, present and reasonably foreseeable projects are expected to result in greater increases in jobs (short-term construction projects, as well as ongoing permanent jobs), as well as increased economic productivity. No significant adverse cumulative effects are anticipated.

6.3.4 Surface Transportation Impacts

Over the last few decades, the population of the area has increased, bringing increases in surface travel and congestion on area roadways. Activity accessing O'Hare has exerted additional surface traffic demands on area roadways. Such demands are similar to the demand placed on area roads as the population of the Chicago metropolitan area has increased. As is noted in **Section 5.3, Surface Transportation**, proposed Build Alternatives are expected to result in the ability of the Airport to accommodate greater levels of enplaned passengers than would occur with the No Action Alternative (Alternative A). As a result, greater levels of surface traffic would occur with the proposed build alternatives. With the build alternatives relative to the No Action Alternative (Alternative A), an increasing number of intersections and roadway segments would experience increasing congestion. The Built Out +5 phase notes that 10 intersections and 13 roadway segments would experience a significant project-related impact. These impacts occur in five primary areas in the immediate vicinity of O'Hare: Irving Park Road, Thorndale Avenue, York Road/Elmhurst Road, Mannheim Road, and Bessie Coleman Drive. In addition to the incremental impact of the Build Alternatives, the analysis presented in **Section 5.3** also includes projected growth in the region as projected by the Chicago Area Transportation Study (CATS) in the 2020 Regional Transportation Plan (RTP). Mitigation measures could consist of additional surface traffic improvement projects such as the West O'Hare Bypass, East Extension of the Elgin-O'Hare, Metra STAR Line, CTA Blue Line – O'Hare Express, and other potential projects.

Such airport demands have been reflected in the 2020 Regional Transportation Plan adopted by the metropolitan planning organization. In response to regional economic growth, population in-migration, and projects such as improvements at O'Hare, the region is expected to undertake a substantial number of roadway/surface access improvements over the next 25 years, as reflected in *2030 Regional Transportation Plan for Northeastern Illinois*.

6.3.5 Air Quality

In addition to the cumulative impacts associated with combining all of the proposed actions, consideration was given to the air quality implications of past, present, and future actions. In addition to the Build Alternatives, there are other reasonably foreseeable developments at the

Airport and airport vicinity that would affect air quality and pollutant emissions. These projects have either been considered in separate environmental documentation in recent years, or will be assessed in the near future by other parties, as noted in **Section 6.2, Projects Considered in Cumulative Effects**.

Air quality has clearly been adversely affected as a result of human activities and development. In the past 30 years, application of federal and state emissions regulations and significant technological improvements aimed at reducing effects on air quality have acted to counter emission increases caused by population and development growth.

As shown in **Table 6-4**, pollutant emissions are expected to decrease from the 2002 Baseline for all criteria pollutants except NO_x and SO_2. The nearly three fold increase in NO_x emissions are attributed to two primary conditions: 1) improvements in the prediction of aircraft and ground support equipment NO_x emissions, and 2) increases in emissions associated with aircraft due to the use of high-bypass ratio engines that increases engine core temperatures and thus increase NO_x emissions. While NO_x increases have occurred as a result of the high-bypass ratio engine aircraft use, noise emissions as discussed previously have decreased significantly.

TABLE 6-4
TONS OF POLLUTANTS PER YEAR FROM O'HARE-RELATED SOURCES

			Build Out + 5			
Pollutant	**1979**	**2002**	**No Action (Alternative A)**	**Alternative C**	**Alternative D**	**Alternative G**
CO	23,189.3	28,947	21,952	25,977	26,455	25,954
HC / VOC	4,009.0	2,023	1,064	1,318	1,360	1,316
NOx	2,364.0	6,629	6,246	7,239	7,355	7,234
SO_2	380.7	443	438	554	579	553
TSP / PM10	246.1	154	111	125	127	125
PM2.5	NA	124	93	106	107	106

Note: Significant methodology differences exist in the model used to evaluate conditions in 1979 (EPA's PAL model) and the use of EDMS used in evaluating 2002 and Build Out + 5 conditions. Levels of pollutants for 1979 were originally reported in lbs / day and reflect only airport-related emissions reported in the May 1984 FEIS, Page 84. These emissions were translated into annual emissions using a conversion from PMAD to annual of 15.44)
NA= Not Applicable. PM 2.5 analysis was not completed in the 1984 O'Hare EIS.

Source: 1979: Environmental Impact Statement, FAA, May 1984, page 84.
2002 and Build Out + 5: Environmental Science Associates, Inc. [TPC] analysis, 2005.

The cumulative effects of past, present, and future actions has resulted in significant reductions in emissions associated with on-road vehicles (autos and trucks), stationary sources, and some off-road vehicles (such as the use of cleaner fuel ground support equipment). Thus emissions reductions have occurred for carbon monoxide, sulfur oxides, hydrocarbons/volatile organic compounds, and particulate matter. However, these reductions have been offset by increases in nitrogen oxides.

It is probable that additional health based standards may be pursued by EPA in the future and that emissions reduction controls would then be pursued to target those specific pollutants. However, at this time, it is not possible to identify how the standards might evolve. The Chicago area has been designated as non-attainment under the 8-hour ozone standard, with attainment expected by June 2010. Therefore, the ozone precursors, nitrogen oxides and volatile

organic compounds, are pollutants of primary concern based on current standards. The completion of the Build Alternatives, in combination with other past, present, and foreseeable actions is expected to result in a slight reduction in NO_x emissions, with an increase in VOC and CO emissions. Despite the increase in CO, no exceedances of the National Ambient Air Quality Standard (NAAQS) are anticipated. It is expected that the increase in VOC emissions will be addressed in the upcoming 8-hour ozone SIP for the area, and thus would not be a significant impact. Therefore, no significant adverse cumulative effects are expected. The incremental impact of air pollutant emissions associated with the Build Alternatives in Build Out + 5, when considered with non-Airport-related emissions, are not predicted to cause or contribute to an exceedance of the NAAQS within the study area.

Further, the City of Chicago is preparing an application to participate in the FAA's Voluntary Airport Low Emission program (VALE). This program could fully, or in part, fund the following projects, which are not part of the Build Alternatives:

- Extension of the existing ATS to new/existing facilities.
- Electrify connections at all existing gates. 75% of existing gates are currently electrified.
- Provide an additional alternative fuel vehicle fueling station for use by Airport tenants and the public.
- Provide Pre-Conditioned Air (PCA) at all existing gates. 61% of existing gates currently have PCA.
- Increase use of alternative fueled vehicles (currently at 21%), including the conversion of diesel ground support equipment to compressed natural gas, propane, or electrification

6.3.6 Water Quality

In addition to the proposed Build Alternatives, there are other reasonably foreseeable developments in the vicinity of the Airport that may affect water quality. These projects have either been considered in separate environmental documentation in recent years, or may be assessed in the near future by other parties, as noted in **Section 6.2, Projects Considered in Cumulative Effects**.

Potential impacts to water quality may be caused directly and indirectly. Construction activities may include such things as clearing of vegetation, various demolition, regrading the existing ground surface, installing drainage, installing additional pavement and buildings, and handling construction materials. Such activities generally change pervious surfaces to impervious surfaces, and could also change the rate of infiltration. Development of impervious areas would create additional stormwater runoff and compensatory measures for stormwater runoff control would be provided through construction of detention/retention basins. Erosion and dust control measures are also an integral form of mitigation during construction.

In addition, development within the Chicago region will result in additional impervious surfaces. In developed or developing urban areas, local regulations generally force any entity to comply with local and State Ordinances for building permits to be issued.

Activities and events that could occur during operation of the airport facilities and planning highway/roadway improvements, such as stormwater runoff, accidental spills, sanding and de-icing, and vegetation control all have the potential to affect surface water quality. Contaminant concentrations in stormwater coming from such surfaces would most likely not exceed State Water Quality standards due to treatment by selected Best Management Practices (BMPs).

Additional impervious surface in a watershed could contribute to a potential cumulative impact to aquatic plants and animals. However, runoff from the proposed surface would be relatively clean and the relative contribution of surface water runoff would be relatively small. It is anticipated that any cumulative effects would be negligible, as it would be mandatory for all projects to comply with existing and future water quality permit requirements.

Moreover, as the Agency has stated elsewhere, until specific plans are completed for regional development projects, the potential environmental impacts attributable to those projects cannot be specified. These projects, if implemented, would occur with or without the Build Alternatives. Similarly, impacts from those projects cannot be quantified in any cumulative impact analysis.

6.3.7 Department of Transportation Section 4(f) Lands and Land and Water Conservation Fund Section 6(f) Lands

In addition to the Build Alternatives, there are other reasonably foreseeable developments at the Airport and in the Airport environs that have the potential to affect Section 4(f) and Section 6(f) lands were identified in the study area. These projects have either been considered in separate environmental documentation in recent years, or will be assessed in the near future by other parties, as noted in **Section 6.2, Projects Considered in Cumulative Effects**.

O'Hare has created no significant adverse impacts on DOT 4(f) lands in the last three decades, as no 4(f) lands have been acquired. Aircraft noise levels have exerted 65 DNL and greater noise levels on DOT 4(f) lands, as well as other environmental effects. In general, noise exposure impacts, air pollution levels, and water quality impacts on such resources have improved, as discussed earlier. The proposed Build Alternatives would adversely affect seven DOT Section 4(f) lands, requiring the acquisition and relocation of three parks and four historic properties.

Other regional projects may adversely affect these or other DOT 4(f) lands. For instance, the eastern section of the Elgin-O'Hare project crosses Salt Creek, Salt Creek Marsh, and other properties of the Forest Preserve District of DuPage County, all of which are 4(f) lands. The West O'Hare Bypass may also pass through Silver Creek Forest Preserve, a property of the Forest Preserve District of DuPage County, in the northeast section of the county. The STAR Line project is also adjacent to three major properties of the Forest Preserve District of north Cook County including Poplar Creek, Paul Douglas, and Ned Brown Forest Preserves. The STAR Line project also traverses Crab Tree Forest Preserve. In DuPage County, the project traverses major forest preserves, including Pratts Wayne Woods and West Chicago Prairie.

Moreover, as the Agency has stated elsewhere, until specific plans are completed for regional development projects, the potential environmental impacts attributable to those projects cannot be specified. These projects, if implemented, would occur with or without the Build Alternatives. Similarly, impacts from those projects cannot be quantified in any cumulative impact analysis.

6.3.8 Historic Architectural, Archaeological, and Cultural Resources

In addition to the Build Alternatives, there are other reasonably foreseeable developments at the Airport and in the airport environs that may affect historic, architectural, archaeological and cultural resources. These projects have either been considered in separate environmental documentation in recent years, or will be assessed in the near future by other parties, as noted in **Section 6.2, Projects Considered in Cumulative Effects**.

O'Hare has created no significant adverse impacts on such resources in the last three decades, as no historic, architectural, archaeological and cultural resources have been acquired. In general, noise exposure impacts, air pollution levels, and water quality impacts on such resources have improved, as discussed earlier. The Build Alternatives (C, D, and G) would adversely affect four historic resources, requiring the acquisition and/or demolition of these properties. All Build Alternatives would affect St. Johannes Cemetery, Rest Haven Cemetery, Gas Service Station, and the Schwerdtfeger Farmstead.

Moreover, as the Agency has stated elsewhere, until specific plans are completed for regional development projects, the potential environmental impacts attributable to those projects cannot be specified. These projects, if implemented, would occur with or without the Build Alternatives. Similarly, impacts from those projects cannot be quantified in any cumulative impact analysis.

6.3.9 Biotic Communities

In addition to the Build Alternatives, there are other reasonably foreseeable developments at the Airport and in the airport environs that may affect biotic communities (fish, wildlife and plants). These projects have either been considered in separate environmental documentation in recent years, or will be assessed in the near future by other parties, as noted in **Section 6.2, Projects Considered in Cumulative Effects**.

As shown in **Table 6-5**, the most notable reduction in ground cover at O'Hare in the period between 1982 and 2002 was a reduction in unmowed and mowed grasses (a loss of about 1,411 acres) and forest cover (reduced by 464 acres). The completion of the Build Alternatives is expected to further remove existing scrub-shrub, unmowed grass, and forested areas.

Cumulative impacts on plant communities could occur as a result of concurrent or future construction of several other proposed regional projects in the Airport vicinity. These impacts would contribute to additional loss of native vegetation and habitat, thus further reducing the limited natural resources in the vicinity of the Airport. Vegetation communities potentially affected include managed grassland, shrub, and wetland.

Cumulative impacts on wildlife communities may occur as a result of other projects proposed in the Airport vicinity. Fragmentation of habitat, wildlife disturbance caused primarily by vehicular traffic and airport operations, and other activities associated with urbanization has diminished wildlife use of the area. Continuing development in the vicinity would contribute to additional loss of wildlife habitat, vegetation, and further reduce the limited wildlife resources in the area. Therefore, other regional projects, in combination with Build Alternatives, are expected to place added development pressures on the remaining undeveloped lands. However, until specific project plans are known, it is not possible to quantify the specific cumulative effects from the Build Alternatives and these other regional projects.

TABLE 6-5
GROUND COVER AT O'HARE

	Acres of Ground Cover			
Vegetation Type	**1982(a)**	**2002**	**Build Out No Action (Alternative A)**	**Build Out Alternative C, D, or G (Ranges)**
Existing Airfield Area				
Pavement/Buildings(b)	1,640	2,776	2,776	3,546-3,849
Unmowed Grass(c)	3,350	669	669	240
Mowed Grass	1,283	2,553	2,553	2,624-2,927
Forested	652	188	188	11
Scrub-shrub	NA(d)	618	618	80
Total	**6,925**	**6,804**	**6,804**	**6,804**
Acquisition Areas				
Mowed Grass	NA	NA	115	411-423
Pavement/Buildings	NA	NA	266	49-61
Forested	NA	NA	19	0
Scrub-Shrub	NA	NA	18	0
Unmowed	NA	NA	55	0
Total	**NA**	**NA**	**337**	**337**

Notes:
(a) Final Environmental Impact Statement, FAA, May 1984, Volume Two of Two, Appendix A, Exhibit 41.
(b) The ground cover types presented in the May 1984 FEIS, "Building Roof", "Pavement", and "Gravel" are presented together as "Buildings/Pavements" so that a direct comparison can be made in 2002 and 2018.
(c) The ground cover types presented in the May 1984 FEIS, "Unmowed Grass" and "Wetland" are presented together as "Unmowed Grass" so that a direct comparison could be made in 2002 and 2018.
(d) NA = Not Available or not applicable.

6.3.10 Endangered and Threatened Species of Flora and Fauna

Other reasonably foreseeable developments at the Airport and in the Airport environs may affect threatened and endangered species. These projects have either been considered in separate environmental documentation in recent years, or will be assessed in the near future. However, these projects are not expected to have a significant impact on threatened or endangered species. Habitat potentially affected by these projects may include perch sites and foraging habitat for endangered or threatened specifies of fauna; however, such habitat features are uncommon in the area of the potential alternative developments areas because the developed nature of the sites. The proposed airport build alternatives are not expected to affect threatened or endangered species of flora or fauna.

The western section of the Elgin-O'Hare Expressway project may affect the numerous wetlands associated with the West Branch of the DuPage River on the north border of DuPage County. That project passes through an area that includes threatened and endangered species. The South Suburban Airport (SSA) also has the potential to affect endangered and threatened species of flora and fauna. The SSA Tier 1 EIS noted that the Will County Site has been known to be accessed by the federally endangered Indiana bat (*Myotis sodalis*), the federally threatened (formerly endangered) Bald Eagle (*Haliaeetus leucocephalus*), and the federally threatened lakeside daisy (*Hymenoxys acaulis* var. *glabra*).

However, until specific project plans are known, it is not possible to quantify the specific cumulative effects from the Build Alternatives and these other regional projects.

6.3.11 Wetlands

Continued pressures to fill area wetlands have occurred over the last few decades, as population has increased and development has occurred throughout the region. The No Action Alternative (Alternative A) would affect 23.5 acres of wetlands and Waters of the United States (WUS), while the proposed build alternatives would affect 153 acres. In addition to the approximate 153 acres of wetland that would be affected by the proposed Build Alternatives, other reasonably foreseeable developments in the Airport environs would likely affect additional wetlands. These other projects have either been considered in separate environmental documentation in recent years, or will be assessed in the near future.

The western section of the Elgin-O'Hare Expressway project may affect the numerous wetlands associated with the West Branch of the DuPage River on the north border of DuPage County. The eastern section of the Elgin-O'Hare project crosses Salt Creek, Salt Creek Marsh, and other properties of the Forest Preserve District of DuPage County. The West O'Hare Bypass section may affect a concentration of palustrine wetlands in northeast DuPage County.

The STAR Line project would also pass through a concentration of streams and palustrine wetlands associated with the Poplar Creek and Spring Creek Systems and a concentration of threatened and endangered species along the north border of the Ned Brown Forest Preserve and the Crab Tree Nature Center. In DuPage County, the project crosses or is adjacent to major streams including segments of the DuPage River System and Waubonsee Creek.

The development of the South Suburban Airport (SSA) has the potential to affect 364.4 acres of National Wetlands Inventory (NWI) mapped wetlands with in the ultimate development site. The site consists of: 202.3 acres of palustrine emergent wetlands, 41.9 acres of palustrine forested wetland, 25.5 acres of palustrine open water, 3.1 acre of palustrine scrub-shrub, 11.1 acres of palustrine emergent/forested/ scrub-shrub complex, and 80.5 acres of riverine wetlands. At this time a Tier 2 Environmental Impact Statement is being prepared for the proposed SSA, which will disclose the wetland and WUS impacts.

Therefore, other regional projects, in combination with any of the Build Alternatives, will likely impact wetland resources in the region. However, until specific project plans are known, it is not possible to quantify the specific cumulative effects on wetlands from the Build Alternatives and these other regional projects. Regulatory agencies that oversee wetland permitting help to ensure that impacts to wetlands are mitigated in accordance with applicable laws.

6.3.12 Floodplains

The proposed Build Alternatives would increase the impervious surface at the Airport. However, drainage will be designed to accommodate the increased runoff. The Build Alternatives are not expected to encroach on floodplains or floodways.

Other regional projects, in addition to Build Alternatives, are likely to adversely affect area floodplains. The western and eastern sections of the Elgin-O'Hare Expressway project may affect the numerous wetlands and area creeks. The West O'Hare Bypass section may affect a concentration of wetlands in northeast DuPage County. The STAR Line project would also affect streams and wetlands in Cook and DuPage County. However, until specific project plans are known, it is not possible to quantify the specific cumulative effects on floodplains from the Build Alternatives and these other regional projects.

Adverse impacts on floodplains or flooding would potentially result from development of other proposed regional projects in the vicinity, particularly if these encroach on existing floodplains or fail to meet regional detention requirements for stormwater runoff. Enforcement of local floodplain development standards and stormwater runoff detention requirements would prevent floodplain encroachment and mitigate potential flooding impacts from other proposed development.

Moreover, as the Agency has stated elsewhere, until specific plans are completed for regional development projects, the potential environmental impacts attributable to those projects cannot be specified. These projects, if implemented, would occur with or without the Build Alternatives. Similarly, impacts from those projects cannot be quantified in any cumulative impact analysis.

6.3.13 Coastal Zone Management, Coastal Barriers, Wild and Scenic Rivers

O'Hare is not located in a coastal zone management plan area. There are no designated Wild and Scenic Rivers in the vicinity of O'Hare. While the Des Plaines River is near O'Hare, the additional stormwater runoff from additional impervious surfaces associated with the build alternatives would not affect the free flowing condition of the river. Therefore, no cumulative effects from actions at O'Hare and other regional projects would be expected to affect coastal zone management activities, coastal barriers, or wild and scenic rivers.

6.3.14 Farmland

No land on the Airport property is currently farmed and virtually all proposed airport development would occur on previously disturbed land. Because the land has been disturbed, the soil classification prevents its designation as prime farmland. Over the years, urbanization of the Chicago area has resulted in the loss of farmland and further losses are expected in the future. For instance, it would be anticipated that the development of the South Suburban Airport would result in an initial loss of 3,054 acres, and potentially up to 17,429 acres, of active farmland, and 54 acres (initially) and 660 acres (ultimately) of inactive farmland, respectively.

As additional induced and secondary development in the Chicagoland region occurs, additional loss of farmland is expected. Such development would be expected regardless of the improvements that are planned for O'Hare.

Moreover, as the Agency has stated elsewhere, until specific plans are completed for regional development projects, the potential environmental impacts attributable to those projects cannot be specified. These projects, if implemented, would occur with or without the Build Alternatives. Similarly, impacts from those projects cannot be quantified in any cumulative impact analysis.

6.3.15 Energy Supply and Natural Resources and Light Emissions

In general, energy consumption has increased nationwide over the decade of the 1990s despite improvements in technology to achieve energy efficiency.

Table 6-6 lists the past, present, and reasonably foreseeable energy consumption associated with activity at O'Hare. Since 1982, energy consumed by all but aircraft sources has increased through 2002. Aircraft fuel consumption in 1982 was 147.9 million gallons[14] which decreased to about 118.1 million gallons in 2002. This reduction is due to the energy efficiencies associated with the newer aircraft fleet in operation. The proposed airport improvement alternatives would result in additional energy and natural resource consumption relative to the No Action Alternative (Alternative A).

TABLE 6-6
ANNUAL ENERGY USE AT O'HARE

	Annual Energy Use (Billion BTUs)			
			Build Out + 5	
Energy Source	**1982**	**2002 (estimated)**	**Alternative A (No Action)**	**Alternative C, D, or G)**
Aircraft	19,958	15,063	17,296	21,947 - 27,283
Ground Service Equipment	193	370	399	490
Airport Facilities	2,286	2,487	2,487	3,626
Ground Access Vehicles	5,254	14,928	17,559	19,086
Total BBTU	**27,691**	**32,848**	**37,741**	**45,149 - 50,485**

Sources: 1982: Final Environmental Impact Statement, FAA, May 1984; 2002 and Build Out + 5: Synergy Consultants, Inc. [TPC] review of information provided by Landrum & Brown [CCT]

In addition, other regional development would similarly result in the consumption of energy and natural resources. However, none of these additional regional projects, in combination with Build Alternatives, is likely to exceed the capacity of the region to service the energy and natural resource needs.

Moreover, as the Agency has stated elsewhere, until specific plans are completed for regional development projects, the potential environmental impacts attributable to those projects cannot be specified. These projects, if implemented, would occur with or without the Build

[14] Final Environmental Impact Statement, Chicago O'Hare International Airport, Chicago, Illinois, FAA, May 1984, page 105.

Alternatives. Similarly, impacts from those projects cannot be quantified in any cumulative impact analysis.

6.3.16 Solid Waste and Hazardous Materials

Expected increases in airport use, development of Airport facilities, and urban development within the surrounding communities would result in the increased use of solid and hazardous materials and generation of greater amounts of wastes. Reasonably foreseeable future actions in the area would also contribute solid waste to the local landfills, primarily in the form of construction debris. Higher use would increase the likelihood of releases of these materials to the environment. Proper storage, use, and disposal procedures would reduce the probability of releases and thus minimize impacts on human health and the environment.

6.3.17 Construction Impacts

In addition to the Build Alternatives, other reasonably foreseeable developments at the Airport and in the airport environs would have construction effects on the adjacent areas. These projects have either been considered in separate environmental documentation in recent years, or will be assessed in the near future. Until specific project plans are known, it is not possible to quantify the specific cumulative effects from construction activities from the Build Alternatives and these other regional projects. However, it is expected that construction of these other facilities and the Build Alternatives would not cause significant adverse construction-related cumulative impacts as long as appropriate construction-related BMPs are used.

6.3.18 Environmental Justice

Executive Order (EO) 12898,[15] issued in 1994, requires each federal agency to include environmental justice as part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse impacts of its programs, policies, and activities on minority and/or low-income populations. Actions taken subsequent to the EO have not resulted in impacts to environmental justice populations. For the last three decades, O'Hare has generated little disruption of established communities in the context of acquisition. As noted in **Chapter 5, Environmental Consequences, Section 5.21, Environmental Justice**, within the population to be acquired under the Build Alternatives, there are a disproportionate number of minority (by race and ethnicity) populations. In addition, businesses could be negatively impacted by the loss of minority residents. Other than the residents and the businesses previously mentioned, there may also be some environmental justice impacts to certain community resources that would remain following acquisition. For instance, schools or other social service agencies may conduct programs which teach English as a second language because of the large minority population present in the acquisition area. If this large minority population moves beyond the limits of the present school district boundary, programs may be affected. Class size and demographics could be affected which could cause a reduction in staff.

[15] Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations, February 11, 1994.

The analyses for the Build Alternatives lead to the preliminary conclusion that there may be a disproportionately high and adverse noise impact on minority (by race and ethnicity) populations and low income households. In making determinations regarding disproportionately high and adverse effects on minority and low income populations, mitigation enhancement measures and all offsetting benefits to the affected minority and low income populations may be taken into account.

As the Agency has stated elsewhere, until specific plans are completed for regional development projects, the potential environmental impacts attributable to those projects cannot be specified. These regional development projects, if implemented, would occur with or without the Build Alternatives. Similarly, impacts from those regional projects cannot be quantified in any cumulative impact analysis.

6.4 SUMMARY AND CONCLUSIONS

A review of past, present, and reasonably foreseeable conditions indicates that O'Hare exerts both positive and negative impacts on the local environs, which have changed over time. Over time, these impacts have decreased relative to environmental conditions such as aircraft noise, emissions of carbon monoxide, volatile organic compounds, and particulate matter. Impacts from surface transportation levels and congestion, natural resource consumption, air emissions of nitrogen oxides and sulfur oxides, and solid waste/hazardous waste generation have increased as activity levels have increased. **Table 6-7** is a summary of the projects considered in the context of cumulative effects.

A number of past, and present non-airport projects have occurred in the area, and others are expected to occur in the future. It is anticipated that changes will continue in the Airport vicinity due to continued increases in population and economic activity in the airport environs and in the Chicago region, the third largest metropolitan area in the U.S. Much of the Airport environs are already surrounded by intensive transportation, residential, and commercial uses. There will be other forms of development, the dimension of which would not be known until plans are approved, can not be measured. Given the existing extent of development in the region generally, the incremental effect of the Build Alternatives is minor, at best, as reflected in this Chapter. Some intensification of development would be expected in the areas, resulting in additional pressures on the social fabric and natural resources of the area. Such effects are dependent on ultimate design, land use plans, and other considerations. However, until specific project plans are known, it is not possible to quantify the specific cumulative effects from the proposed Build Alternatives and these other regional projects.

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TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
I.	**PREVIOUSLY APPROVED PROJECTS AT O'HARE**									
I-1	Terminal 1 Reconfiguration	X					X			Added gates, reducing delays and congestion, reduce air emissions
I-2	Post Office Facility along Irving Park Road	X					X	+	-	Removed traffic from airport core
I-3	CTA Blue Line Station in the terminal core	X				X	X			Reduced surface traffic
I-4	Terminal 5 Development (New International Terminal)	X					X	+	-	Added gates, reducing delays and congestion in the terminal area
I-5	Terminal 5 surface parking Lot D and access roadway	X					X	+	-	Reducing delays and congestion in the terminal area
I-6	Terminal 5 Upper Level Roadway Rehabilitation	X					X	+	-	Reducing delays and congestion in the terminal area
I-7	Airport Transit System (ATS from Lot E to terminal core)	X				X	X		-	Reduced passenger walking distances, reduce air emissions from surface travel
I-8	Commercial Vehicle Hold Area	X					X	+	-	Reduced surface traffic congestion
I-9	Scenic Hold Pad	X					X	+	-	Reduced aircraft delay
I-10	Runway 9R Hold Pad	X					X	+	-	Reduced aircraft delay
I-11	Runway 27L Hold Pad	X					X	+	-	Reduced aircraft delay
I-12	Runway 4R Angled Taxiway T	X					X	+	-	Reduced aircraft delay
I-13	Aircraft Rescue & Firefighting Training Facility	X						+	-	
I-14	Helipad Commissioning/Operation	X						+	-	
I-15	UAL Reservation Center/Credit Union	X						+	-	

TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
I-16	Long-term Parking Lot E Surface Parking Expansion	X					X	+	-	
I-17	North Airfield drainage improvements winter basins	X						+/-		
I-18	Runway Deicing Fluid Facility Improvements	X						-		
I-19	Aircraft Ground Run-Up Enclosure	X							-	Reduced ground noise
I-20	Existing Metra Station	X					X		-	Increased Metra ridership, reduced surface travel
I-21	Expansion of AMC building, north side	X								
I-22	Bessie Coleman Widening	X					X		-	
I-23	O'Hare Express Center (southeast)	X					X		-	Reduced congestion on area roads
I-24	RPZ Wetland Management Plan	X						+		
I-25	Commercial Vehicle Holding Area Improvements/Limo Holding Area Relocation	X				X	X	+	-	Improved surface travel flows
I-26	Service Road Upgrades (various locations)	X								Improved on-airport traffic flows
I-27	Northwest Airlines Cargo Building Expansion	X				X				Expanded cargo capability
I-28	Salt Dome	X								
I-29	UAL GSE Building/GEM (Ground Equipment Maintenance)	X								
I-30	GPS Antenna	X							-	Enabled use of more precise tracking

TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
I-31	UAL Mail-Sort Relocation	X								
I-32	360 degree SGI Based Tower Simulator			X						
I-33	Pumping Station	X								
I-34	Relocate General Aviation (GA) Terminal Building - Signature Flight Services	X								
I-35	Touhy Detention Basin		X					+/-		Will reduce flooding along Willow-Higgins Creek, fill small quantity of wetlands
I-36	Structure 140/Relocation of Willow-Higgins Creek		X					+/-		Will reduce flooding along Willow-Higgins Creek, fill small quantity of wetlands
I-37	Balmoral Ave. Extension		X				X	+	-	Filling wetlands
I-38	Truck Staging Area			X					-	Reduced surface vehicle congestion
I-39	UAL Headquarters (Phase I) and associated roadway improvements			X				-		Site is within the 1-year floodplain for Willow-Higgins Creek but with regional improvements would avoid displacing floodplain
I-40	Mannheim Road: Continuous SB through and Right turn lane from Higgins to Zemke			X			X	+	-	Improve traffic flows
I-41	Mannheim Road: Extension of NB left turn lane at Zemke			X			X	+	-	Improve traffic flows
I-42	Zemke Road: Addition of 2nd left turn lane on EB Zemke onto NB Mannheim			X			X	+	-	Improve traffic flows
I-43	Zemke Road: Addition of WB through lane on Zemke at Mannheim Road			X			X	+	-	Improve traffic flows

TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
I-44	Zemke Road: Right turn-only from EB Zemke to SB Mannheim Road			X			X	+	-	Improve traffic flows
I-45	Zemke Road: Right turn-only from EB Zemke to SB Bessie Coleman			X			X	+	-	Improve traffic flows
I-46	Bessie Coleman Drive: Addition of right turn lane onto EB Zemke Road			X			X	+	-	Improve traffic flows
I-47	Johnson Road: Extension to the east with a right turn only to SB Mannheim Road			X			X	+	-	Improve traffic flows
I-48	Lot E Long-Term Remote Parking Structure			X		X	X	+/-		6-level parking structure with 6,300 stalls, would dislocate detention basin that would be replaced
I-49	Temporary Lot G Long-Term Parking	X				X	X	+	-	Reduced surface vehicle congestion
I-50	Extension of Concourse F/Terminal 2	X								
I-51	Terminals T1, T2, T3 Face Improvements and Roadway Canopy		X							Improved passenger convenience
I-52	Various Terminal Improvement Projects/Rehabilitation	X								
I-53	Various Runway/Taxiway Re-surfacing/Rehabilitation Projects	X	X	X						Primarily maintenance and renewal
I-54	Police Facility Relocated to just south of Higgins Road and west of Realigned Bessie Coleman Drive			X				+/-		While site is within the 100 year floodplain, with other regional improvements it would be outside the floodplain
I-55	Concourse L Hold Room Expansion			X						Improved passenger convenience
I-56	Helipad Decommissioning	X								

TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
I-57	O'Hare Express North/Willow-Higgins – Centerpoint Development		X					+		Development west of Lee Street for warehousing, freight forwarding; will fill wetlands.
I-58	Direct Fuel Feed System Upgrade/Super Satellite Station Removal		X					-	-	Reduced potential for contamination spills
I-59	Airside Vehicle Access Road & Bridge Project			X					-	Reduced surface vehicle congestion
I-60	City Warehouse and Trades Building			X						
I-61	ATS Maintenance & Storage Yard Development			X						
I-62	ATS Realignment & New Station at Terminal 6			X						
I-63	New ATS Station at Consolidated Rental Car Facility			X						
I-64	Expansion of Terminal Core Elevated Parking Structure			X		X	X		-	Improved congestion
I-65	Lot E Parking Reallocation			X						
I-66	Consolidated Rental Car Facility			X		X	X		-	Reduced surface vehicle travel due to consolidated RAC bussing
I-67	Relocate facilities to Consolidated Rental Car Facility			X						
I-68	Rental Car Storage and Maintenance Facility and Bridge over Mannheim Road			X					-	Reduced surface vehicle travel
I-69	Lot F Parking ATS Station and Intermodal Connection		X						-	Reduced surface vehicle travel

TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
I-70	Additional 2 Fuel Tanks Developed in Northwest Airfield at Fuel Farm		X					+		
	Eastside Collateral Development			X		X	X	+	-	
I-71	- 50 percent build-out			X		X	X	+	-	
I-72	- Remaining 50 percent build-out			X		X	X	+	-	
	O'Hare Roadway Improvements						X	+	-	
I-73	Lee Street/Northwest Tollway Interchange (addition of Lee St. on-ramp to WB I-90 and EB I-90 off-ramp to Lee St.)			X		X	X	+	-	Reduced surface vehicle travel
I-74	Westerly relocation and widening of the northern portion of Bessie Coleman Drive to Higgins Road			X		X	X	+	-	Reduced surface vehicle travel
I-75	Zemke Road Extension			X		X	X	+	-	Reduced surface vehicle travel
I-76	Mannheim Fly-over ramp from Bessie Coleman Drive to SB Mannheim Road	X					X	+	-	Reduced surface vehicle travel
I-77	Balmoral Avenue Ramps at SB Mannheim	X					X	+	-	Reduced surface vehicle travel
I-78	Balmoral Extension over Mannheim Road	X					X	+	-	Reduced surface vehicle travel
I-79	Southeast Service Road and Spine Road Conversion			X					-	Reduced surface vehicle travel
I-80	Commercial Vehicle Tunnel		X				X	+	-	Reduced surface vehicle travel
	O'Hare Noise Abatement Procedures	X							-	
I-81	Residential and School Sound Insulation Program	X							-	Reduced noise impacts
I-82	Fly Quiet Program – Nighttime Preferential Runway and Flight Track Program	X							-	Reduced noise impacts

TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
See Note (1)	Extension of Runway 14R/32L	X				X	X	+	-	Enabled service to Pacific Rim during summer months, reduced delay
III.	**ADDITIONAL ROADWAY IMPROVEMENTS BY OTHERS**									
III-1	Mannheim Road: Widening of Mannheim Road to 3 lanes each direction between Higgins and Irving Park - IDOT		X			X	X		-	Reduced surface travel congestion
III-2	Addition of Partial Interchange on I-294 at Devon Avenue (add SB off-ramp to Devon)			X		X	X		-	Reduced surface travel congestion
III-3	Expansion of I-90 Interchange at Elmhurst Road (add Elmhurst Road on-ramps to WB I-90 and EB I-90 off-ramps to Elmhurst Road)			X		X	X		-	Reduced surface travel congestion
III-4	Irving Park Road and York Road Intersection Improvements			X		X	X		-	Reduced surface travel congestion
III-5	I-190 Improvements		X	X		X	X		-	Reduced surface travel congestion
III-6	I-90 add lanes from I-294 to Illinois Route 53			X		X	X		-	Reduced surface travel congestion
III-7	York/Thorndale grade separation and interchange improvements including 'off-airport' improvements all of which would be within the existing York/Thorndale right-of-way			X			X		-	Reduced surface travel congestion
IV.	**PROJECTS BY OTHERS**									
IV-1	Balmoral Avenue SB Tunnel			X		X	X		-	Reduced surface travel congestion
IV-2	Limo Service Center		X			X	X		-	Reduced surface travel congestion
IV-3	Phase-out of Stage 1 and 2 Aircraft	X							+/-	Reduced aircraft noise/increased NOx emissions

TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
IV-4	Military Base Relocation to Scott AFB			X		X				Enabled land at O'Hare to be used for commercial aviation
IV-5	Demolition of AMC Annex			X						
See Note (1)	Metra Commuter Station Expansions			X		X	X		-	Reduced surface travel congestion
See Note (1)	Rosemont Rail Spur			X		X	X		-	Reduced surface travel congestion
See Note (1)	Improvements at other existing airports	X	X	X						No effects at O'Hare
See Note (1)	Development of the South Suburban Airport			X						No effects at O'Hare
See Note (1)	ICAO/FAA source noise and emission controls			X					+/-	Continued noise reduction, potential increases in NOx emissions
See Note (1)	Clean Air Act and Clean Air Act Amendments	X							-	Reduced emissions
See Note (1)	Local community development	X	X	X				+/-	+/-	Future population increases, increase surface travel congestion, and increased infill development
V.	**AIR TRAFFIC CONTROL PROCEDURES**									
V-1	New Airport Traffic Control Tower	X					X			Improved control of aircraft operations
V-2	Chicago Terminal Airspace Project (CTAP)		X	X			X			Was designed to affect high altitude aircraft and reduce delays and congestion in the airspace

TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
V-3	Removal of the High Density Rule	X				X			-	Elimination of the HDR has notably affected long-term activity levels, but may affect short-term levels by possibly shifting some night traffic to the daytime. Reducing noise
V-4	LAHSO	X				X	X			Changed the procedures to reduce the usage of LASHO
V-5	Upgrade Runways 27L and 27R to Cat II/III Capability		X			X	X			Improve the poor weather operating capability
V-6	National Airspace Redesign (NAR)		X	X			X			Would affect high altitude aircraft and reduce delays and congestion in the airspace. Not expected to generate significant noise impacts.
	Development of Procedures for quad IFR approaches if Alternative C is implemented			X			X		-	Would reduce delays during IFR conditions.
VI.	CAPITAL IMPROVEMENT PROJECTS									
VI-1	Storage & Multi-Waste Management Facility at Airport Repair and Construction (ARC) Complex		X							
VI-2	Fire Fighter Training and Simulator Building - ARFF	X								
VI-3	South Airfield Drainage Improvements	X						-		Improved drainage
VI-4	Fuel Farm Sewage Lift Station Replacement		X							
VI-5	West Perimeter Service/Security Road at O'Hare			X					-	Reduced surface vehicle movement
VI-6	Improvements to Building 8500/Relocate Central Field Office to existing 8500		X							

TABLE 6-7
PROJECTS CONSIDERED IN THE CONTEXT OF CUMULATIVE EFFECTS

Project ID (1)	Description	Cumulative Impact Context				Consequence of the Project (- Decreased impact, + Increased impact, X Operational impact)				Project Impacts and Comments
		Past	Present (2004-2007)	Foreseeable Future		Increase Activity	Reduce Delay/ Congestion	Natural Resource	Human Environment	
VI-7	Military Site Utilities (Including Fiber Optic Installation)		X							
VI-8	Snow Dump 1A Reconstruction		X							
VI-9	Various Runway/Taxiway Re-surfacing/Rehabilitation Projects	X	X	X						Maintenance and renewal
VI-10	Runway 4L/22R Rehabilitation, Taxiway C Reconstruction, and Realignment of Service Road around the Runway 22R Safety Area		X							Maintenance and renewal
VI-11	Various H&R Improvements		X							
VI-12	Various Terminal Improvements	X	X	X						Maintenance and renewal and increased passenger amenities
VI-13	Security Enhancements	X	X	X						
VI-14	AVI System for Ground Transportation		X						-	Reduced surface travel congestion
VI-15	Temporary Conversion of Runway 18/36 to Taxiway GG		X							
VI-16	Reconstruct/Rename Taxiway KK (Previously the West Ramp)		X							
VI-17	Rename Taxiway LL		X							
VI-18	Rename Taxiway MM		X							
VI-19	Former Central Field Office Trailer Site - Currently being used as Snow Removal Staging Area		X							

Notes: (1) Project IDs are taken from the Project Definition Matrix (**Table E-19** in **Appendix E**, **Alternatives**). Where Project IDs are not included, these projects or actions are supplemental to the Project Definition Matrix and reflect a larger number of projects or actions (mostly historic in nature) included in the cumulative impacts analysis. The proposed actions that are the subject of this EIS (O'Hare Modernization projects) are not included in this table, but are listed in **Table E-19**, and are part of the cumulative impact analysis.

Source: **Table E-19** Project Definition Matrix in **Appendix E.** TPC Analysis

TABLE 6-8
SUMMARY OF CUMULATIVE EFFECTS

Resource	Past Actions	Present Actions	Proposed Actions	Reasonably Foreseeable Future Actions	Estimated Cumulative Effects
Noise	Overall noise impacts reduced due to national aircraft initiatives, despite increases in surface traffic and rail noise.	No notable noise changes.	Some increase in aircraft noise over the no action due to increased levels of aviation activity.	Continued reductions in noise despite increased activity levels.	Continued reductions in noise despite increased activity levels. No additional significant cumulative effects.
Compatible Land Use	Impacts reduced due to national aircraft noise initiatives.	No notable land use changes.	Some increase in land use conflicts over the no action due to increased noise levels.	Increased population and economic activity would be expected to continue intensifying development	No additional significant cumulative effects.
Social & Secondary (Induced) Impacts	Local community growth and increased jobs, payroll, and economic activity due to aviation.	No notable changes.	Acquisition of 2,553 to 2,631 homes and 164 to 197 businesses. However, the project should offset these losses with gains in jobs, payroll, and economic activity.	Public service demand will increase in the future due to increasing population, jobs, and economic activity.	No additional significant cumulative effects.
Surface Transportation	Local community growth has result in increased surface traffic congestion.	No notable changes.	Increase in surface traffic levels over the no action due to increased levels of aviation activity. No significant unmitigated changes in levels of service.	Additional population growth of the region will place added surface traffic demands on area roadways. The RTP has identified possible mitigation.	No additional significant cumulative effects.
Air Quality	Impacts reduced due to national initiatives.	No notable changes.	Emission loads of carbon monoxide, volatile organic compounds, nitrogen oxides, sulfur oxides, and particulate matter 10 microns or less in size are higher with the Build Alternatives than with the no action.	Continued increases in emissions due to increased use of high-bypass engine aircraft. Overall regional emissions are expected to decrease over time due to actions taken to control ozone and particulate matter.	No additional significant cumulative effects identified.
Water Quality	Improvements in effluent quality as a result of national permits.	No notable changes. Several City of Chicago actions are directed at improving water quality discharges.	Additional impervious surfaces would be created, generating additional stormwater runoff. Permit compliance will prevent adverse impacts.	Continued regional development will generate additional imperious surface and stormwater runoff. Additional economic activity could generate additional pollutant discharges.	No additional significant cumulative effects.

TABLE 6-8
SUMMARY OF CUMULATIVE EFFECTS

Resource	Past Actions	Present Actions	Proposed Actions	Reasonably Foreseeable Future Actions	Estimated Cumulative Effects
Section 4(f) and 6(f) Lands	No direct impacts on Section 4(f) or 6(f) lands. Indirect impacts have been decreasing.	No notable changes.	All Build Alternatives would require the acquisition of 3 parks and 5 historic sites. Alternative C would require 1 additional historic site. Constructive use impacts could occur to 1 historic site and 2 parks.	Regional roadway improvements could affect other area parks/forest preserves.	No additional significant cumulative effects.
Historic, Archaeological, Architectural, and Cultural Resources	No direct impacts on such lands. Indirect impacts have been decreasing.	No notable changes.	Project would require the acquisition of historic sites. Alternative C would require 6 sites, Alternatives D and G would require 5 sites.	No known impacts to historic, archaeological, architectural or cultural resources.	No additional significant cumulative effects.
Biotic Communities	Population growth and associated development has resulted in the loss of natural habitat.	Projects will result in a reduction in undeveloped area.	The Build Alternatives would result in a loss of 196 acres of forested land, 556 acres of shrub-scrub, and 484 acres of unmowed grasses, resulting in a loss of habitat for transient wildlife.	Continuing development in the vicinity would contribute to additional loss of wildlife habitat, vegetation, and further reduce the limited wildlife resources in the area.	Cumulative impacts on wildlife communities may occur. Until specific project plans are known, it is not possible to quantify the specific cumulative effects
Endangered and Threatened Species of Flora and Fauna	Population growth and associated development has resulted in the loss of habitat for endangered and threatened species.	No notable changes.	No impacts expected.	Other reasonably foreseeable developments at the Airport and in the Airport environs may affect threatened and endangered species	Until specific project plans are known, it is not possible to quantify the specific cumulative effects.
Wetlands and Waters of the U.S.	Population growth and associated development has resulted in the loss wetlands. However, in the last three decades, permit requirements are replacing wetlands.	Small quantities of wetlands are being filled by ongoing projects.	Projects would result in the filling of 153 acres of wetlands and Waters of the U.S. Wetlands and Waters of the U.S. would be replaced off-site.	Other regional projects, in combination with any of the Build Alternatives, will likely impact wetland resources in the region.	Until specific project plans are known, it is not possible to quantify the specific cumulative effects on wetlands. Regulatory agencies that oversee wetland permitting help to ensure that impacts to wetlands are mitigated in accordance with applicable laws.

TABLE 6-8
SUMMARY OF CUMULATIVE EFFECTS

Resource	Past Actions	Present Actions	Proposed Actions	Reasonably Foreseeable Future Actions	Estimated Cumulative Effects
Floodplains	Population growth and associated development has resulted in the displacement of floodplains. However, local stormwater detention requirements are offsetting this loss.	A small quantity of 100-year floodplain is being affected by the ongoing projects. The Touhy Ave Detention Basin and Structure 140 are reducing flooding downstream of O'Hare and were previously environmentally approved.	The proposed Build Alternatives would increase the impervious surface at the Airport. However, drainage will be designed to accommodate the increased runoff. The Build Alternatives are not expected to encroach on floodplains or floodways.	Regional roadway improvements could require the filling of floodplains adjacent to area creeks. Impacts would be reduced by permit compliance.	No additional significant cumulative effects due to adequate mitigation required by Federal, state, and/or local policies.
CZM, Barriers, Wild and Scenic Rivers	No impacts.	No notable changes.	No impacts.	No notable impacts anticipated.	No additional significant cumulative effects.
Farmland	No impacts.	No notable changes.	No impacts.	No notable impacts anticipated.	No additional significant cumulative effects.
Energy Supply and Natural Resources and Light Emissions	Regional growth has resulted in the consumption of additional energy and natural resources.	No notable changes.	Project would result in an increase in natural resource consumption that can be met through regional supply. No significant light emission impacts.	Continued regional growth will place added pressures on energy and natural resources.	No additional significant cumulative effects.
Solid and Hazardous Waste	Regional growth has resulted in the generation of additional solid and hazardous waste.	No notable changes.	No significant adverse impacts.	No notable impacts anticipated.	No additional significant cumulative effects.

TABLE 6-8
SUMMARY OF CUMULATIVE EFFECTS

Resource	Past Actions	Present Actions	Proposed Actions	Reasonably Foreseeable Future Actions	Estimated Cumulative Effects
Construction	Area has experienced continues construction activity as a result of regional population growth.	Present projects will generate construction noise, emissions, water quality discharges, and surface traffic impacts.	The Build Alternatives would generate construction noise, emissions, water quality discharges, and surface traffic impacts. Use of Best Management Practices will mitigate adverse impacts.	Continued regional growth will result in continuous construction activity, generating noise, emissions, water quality discharges, and surface traffic impacts. Use of Best Management Practices will mitigate adverse impacts.	No additional significant cumulative effects.
Environmental Justice	No impacts.	No notable changes.	The proposed Build Alternatives would require acquisition in a predominately minority community. In addition, businesses could be negatively impacted by the loss of minority residents. The analyses for the Build Alternatives lead to the preliminary conclusion that there may be a disproportionately high and adverse noise impact on minority (by race and ethnicity) populations and low income households.	No known impacts to environmental justice populations.	No additional significant cumulative effects.

Source: TPC Analysis